Alliance of British Drivers

An Effective Approach to Attainment of Vision Zero

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Summary

The ultimate aim of the Vision Zero concept is that no one should be fatally or seriously injured in road accidents. In the UK the 'safe system' approach has been developed to work towards this. There are five aspects to this approach:

- Safe roads and roadsides
- Safe vehicles
- Post crash care
- Safe speeds
- Safe road use

The ABD has particular concerns about the last two of these. Many speed limits in recent years have already been reduced significantly. The Government has changed its advice on speed limit setting, which used to recommend the measured 85th percentile speed (the speed that only 15 per cent of drivers exceed) as the basis for establishing speed limits. That has now been replaced by the mean (average) speed.

Research in the UK and USA over many decades established that speed limits set at the 85th percentile produce the smoothest traffic flow, minimum speed variance and lowest accident risk. The safest drivers are those who travel at 5–10mph above the mean speed. By changing the basis of speed limit setting to the mean speed, half of all drivers, including the safest, are criminalised if they continue to travel at a safe speed above the limit.

The safe system approach would lower speed limits still further, to the point where drivers could crash without suffering serious injury or death. Speed limits set this low, however, would lose all credibility with drivers, leading to high levels of non-compliance, increased speed variance and consequently higher accident risk. They would also boost the highly lucrative speed enforcement industry still further and increase the cost of road transport. Since the road network carries the vast majority of passenger and freight movements in the UK, the economic consequences could not be ignored.

All road users have a responsibility to ensure that their actions do not put themselves or others at risk. This applies to pedestrians and cyclists as well as drivers of motor vehicles. Cooperation and courtesy between road users should be encouraged. Unfortunately, the transport policies adopted by many local authorities in recent years, especially in large urban areas, have alienated different road users from one another.

A change in transport policy is required to provide a more equitable balance between transport modes, recognising the need for reasonable access by motorised transport to and within towns and cities. Attempts at social engineering through policies aimed at promoting modal shift away from motor vehicle use, for ideological reasons, should be outlawed.

The ABD has always strongly supported road user education over enforcement, while recognising that there is a minority of people for whom the deterrent of enforcement is required. The ABD does not accept the pessimistic view that driver training is ineffective. There needs to be much greater promotion of the benefits of road safety training for pedestrians, cyclists and drivers, starting at an early age in schools.

Recommendations

Regarding safe speeds, the ABD wants a return to sensible speed limits, sensibly enforced. To achieve this it will be necessary to:

- Revert to the 85th percentile speed as the basis of speed limit setting.
- Ban speed enforcement operations financed by the proceeds of those operations, since this distorts enforcement priorities.
- Fund speed limit enforcement through government grants, such funding to be dependent on a safety partnership's success in reducing casualties, with fine income reverting to the Treasury.
- Provide adequate funding for the police to reinstate traffic patrols, in order to deter reckless behaviour by the minority of drivers who, in many cases, are not caught by automated camera enforcement.

Regarding safe road use, the ABD wants to see greater understanding and cooperation between road users. To achieve this it will be necessary to:

- Review transport policies, especially in towns and cities, that have reallocated road space disproportionately to non-motorised road users for ideological reasons.
- Recognise the contribution drivers make to the economy and stop the propaganda war against them.
- Encourage existing drivers to take advanced training as a responsible thing to do, not just to benefit from lower insurance premiums.
- Make road safety education, including that of future drivers, compulsory in all schools, with off-road driving experience encouraged where possible.

Introduction

The Alliance of British Drivers (ABD) was formed in 2012 by the merger of the Association of British Drivers (founded 1992) and the Drivers' Alliance. It campaigns for a better deal for Britain's motorists. It is a voluntary organisation funded by subscriptions and donations from members and supporters. The ABD receives no funds from public bodies or private-sector businesses, so is truly independent. It is a member of the Parliamentary Advisory Council for Transport Safety and the National Council of Voluntary Organisations. It is also a member of Transport Focus's Road User Panel.

Background

In recent years, several countries have adopted the concept of 'Vision Zero' as a means to reducing the number of people injured in road accidents. The ultimate aim of Vision Zero is that no one should be fatally or seriously injured on the roads. While most road safety professionals acknowledge that this ideal situation is never likely to be fully achieved in practice, it remains the aspiration.

Arising from the Vision Zero concept, the 'safe system' approach to road safety has evolved in the UK. The key principles underlying this approach are as follows:

1. People will make mistakes that can lead to collisions.
2. The human body has a limited tolerance to crash forces before harm occurs.
3. It is the shared responsibility of highway engineers, vehicle manufacturers and road users to ensure that, if collisions take place, the forces involved do not exceed those that the human body can tolerate[1].

The first two of those points are irrefutable. The ABD has concerns, however, that practical application of the third, if taken to extremes, could seriously impair the ability of the road network to perform its vital functions of supporting the economy and society in general. It is also very negative – mitigating the consequences of accidents instead of trying to prevent them in the first place. The ABD has a more positive approach to attaining Vision Zero, but first it is necessary to examine in more depth the flaws in the current safe system approach.

The UK safe system approach to road safety

There are five aspects to the safe system approach in the UK:

- Safe roads and roadsides
- Safe vehicles
- Post crash care
- Safe speeds
- Safe road use

The first three of those issues are outside the control of road users themselves. They rely on the actions of highway authorities, motor manufacturers, emergency services, and the government policies and legislation affecting those organisations. The ABD supports action that reduces the risk of accidents happening or the consequences of accidents that do occur,

such as improving road alignments and removing or protecting dangerous roadside features. It does have some concerns about the increase in safety aids built into new vehicles, which may cause overreliance on them by drivers and a consequent lack of attention given to the driving task. This will be of increasing concern with the development of autonomous cars. However, the ABD's main concerns are in the areas of safe speeds and safe road use. These are the issues on which the rest of this document will focus.

Safe speeds

Traditionally, speed limits in the UK were set at levels that most drivers considered reasonable, and the police enforced them, for the most part, with common sense and flexibility. Unfortunately this is no longer the case.

In the early 1990s' recession, the government was seeking to reduce public expenditure and the roads budget was seen as a soft target. At the same time, it wanted to be seen as being serious about road safety, so it authorised the use of speed cameras, which were much cheaper than building the new and improved roads the country needed.

The result has been an explosion in automated speed limit enforcement and the creation of an entire industry dependent upon it. In recent years this has been financed largely by the fees paid by those drivers who have been offered, and accepted, a speed awareness course in lieu of a fine and penalty points. The ABD questions the legality of such offers[2]. In order to maintain a steady and growing income stream, camera enforcement has been targeted increasingly at locations where large numbers of drivers exceed unrealistically low speed limits, rather than where there is a history of speed-related accidents.

Speed limits have been lowered on the basis of dubious claims that lower average speeds always lead to fewer accidents. The result is that more and more drivers are exceeding these unreasonably low limits, with speed limits everywhere coming into disrepute. Application of the safe system approach would exacerbate this problem, as speed limits are reduced further to the point where drivers can crash without seriously injuring themselves.

Prior to 2013, government guidance advocated setting speed limits close to the measured 85th percentile speed of free-flowing traffic, i.e. the speed that only 15 percent of drivers would wish to exceed. The 85th percentile was adopted as the method of choice for speed limit setting following extensive experience and research in the USA and UK[3,4,5,6].

The research by Charles C Lave[4] into the relationship between fatality rates, average speed and speed variance on a variety of road types found that there is no statistically discernible relationship between the fatality rate and average speed, but there is a strong relationship with speed variance. His paper refers to earlier research by David Solomon[5] on the relationship between accident rates and speed variance, from which Figure 1 below is reproduced, confirming Lave's findings.

Lave's paper also refers to theoretical work undertaken by Ezra Hauer[6], in which he calculated the number of overtakes at various speeds and thus the frequency of opportunities for collisions to occur. The theoretical distribution that resulted was near identical to Solomon's curve in Figure 1.

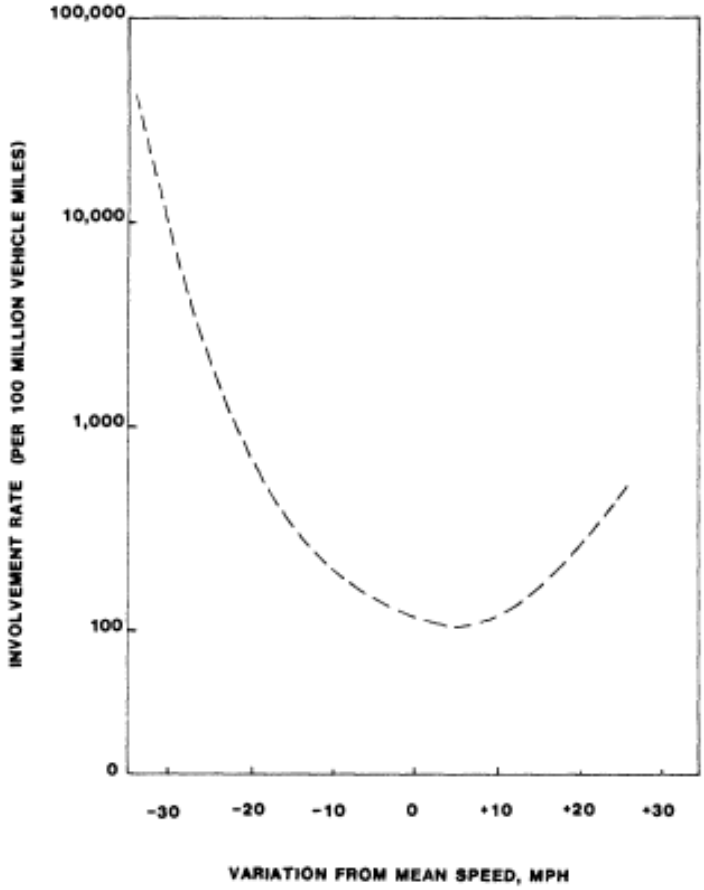

FIGURE 1. DEVIATION FROM AVERAGE SPEED VS. THE COLLISION RATE

It can be seen that vehicles travelling slightly faster than the mean speed have the least accident involvement. Note that the accident involvement rate (vertical scale) is logarithmic, so risk rises exponentially as deviations from the optimum speed increase. For vehicles travelling 20 mph below the mean speed, the risk is seven or eight times greater than that of a driver travelling at the safest speed.

In 2013 the government issued new guidance on speed limit setting, advocating use of the mean (average) speed rather than the 85th percentile. Speed limits set at the mean speed criminalise half of all drivers, including the safest, if they continue to drive at a speed they consider to be reasonable. These lower limits also promote an increase in speed variance, as faster drivers overtake slower ones. This is a particular danger on single-carriageway roads, where overtaking can only be achieved by using the opposing traffic lane.

The need to reduce speed variance on single-carriageway roads was one of the main points raised by the ABD in its response to the government's consultation in 2013 on raising the HGV speed limit from 40 to 50mph. The government clearly accepted the ABD's view, despite vociferous opposition from various road safety bodies, and the limit was raised in April 2015. Preliminary findings published in November 2016[7] indicate reductions in HGV collisions of between 10 and 36 percent. The final results of the three-year monitoring study are yet to be published.

Recent research carried out at Penn State University in the USA[8] shows that small reductions in speed limits to below the 85th percentile speed (up to 5mph) can produce a reduction in accidents, but reductions of 10mph or more below the 85th percentile lead to increases in accidents, as drivers stop paying attention.

It is often argued that lower speeds give drivers more time to react. The reality, however, is that forcing drivers to travel below a speed they consider to be appropriate for the road leads to loss of concentration. If a hazardous situation arises, their reaction time will then be much greater than if they were fully involved in the driving task.

Another consequence of lower speed limits is the resulting increase in journey times and attendant economic costs. Given that motorised road traffic accounted for 88 percent of passenger kilometres[9] in 2016 and 76 percent of domestic freight tonne kilometres[10] in 2015, these costs are not inconsequential and cannot be ignored.

In 2016 there were 25,893 reported fatal and serious road casualties in Great Britain[11]. In the same year total road vehicle-kilometres amounted to 520.9billion[12]. There was thus one fatal or serious injury for every 20,117,406 kilometres. While it might be desirable to reduce this relatively low risk still further, the costs of doing so must be taken into account. Also, as explained above, the speed limit reductions implied by the safe system approach are unlikely to lead to a drop in casualties and might well increase them.

To summarise, the ABD wants a return to sensible speed limits, sensibly enforced. To achieve this it will be necessary to:

- Revert to the 85th percentile speed as the basis of speed limit setting.
- Ban speed enforcement operations financed by the proceeds of those operations, since this distorts enforcement priorities.
- Fund speed limit enforcement through government grants, such funding to be dependent on a safety partnership's success in reducing casualties, with fine income reverting to the Treasury.
- Provide adequate funding for the police to reinstate traffic patrols, in order to deter reckless behaviour by the minority of drivers who, in many cases, are not caught by automated camera enforcement.

Safe road use

All road users have a responsibility to ensure that their actions do not put themselves or others at risk. This applies to pedestrians and cyclists as well as drivers of motor vehicles. Cooperation and courtesy between road users should be encouraged.

Unfortunately, the transport policies adopted by many local authorities in recent years, especially in large urban areas, have alienated different road users from one another. While there may be some merit in encouraging more walking and cycling for short urban trips, it should not be at the expense of the users of motor vehicles, who will often have no realistic alternative. Underused bus and cycle lanes that have taken road space from cars, vans and lorries have exacerbated congestion, resulting in longer journey times and poorer air quality.

Drivers caught in the resulting traffic jams may feel resentment towards those user groups that are given priority over them, for what are often seen as nakedly political reasons.

The situation is not helped by the aggressive actions of a minority of cyclists, who see their choice of transport as morally or environmentally superior to other modes. Pedestrians and drivers are put at risk by those cyclists who disregard fundamental requirements of the Highway Code, such as stopping at red traffic lights or riding on footways. While most cyclists do behave in a responsible manner, the actions of the minority affect the perception of cyclists as a whole.

Pedestrians and drivers can also exhibit erratic behaviour if they allow themselves to be distracted by, for example, mobile phones or the information displays in cars. Incidents arising from such lack of attention can result in acrimonious exchanges or 'road rage'.

All these factors are tending to create antipathy between different road user groups, rather than fostering the cooperation and courtesy required for improved safety and a more pleasant travel experience. In order to reverse this undesirable trend, a review of transport policies and road user education is required.

Review of transport policies affecting road safety

A change in transport policy is required to provide a more equitable balance between transport modes, recognising the need for reasonable access by motorised transport to and within towns and cities. Attempts at social engineering through policies aimed at promoting modal shift away from motor vehicle use, for ideological reasons, should be outlawed.

The distribution of road space between travel modes should be on the basis of maximising the total throughput of people and goods. So, for example, bus lanes should be removed or their hours of operation reduced if they are not carrying at least as many people per hour as adjacent lanes for general traffic.

Where off-carriageway facilities for cyclists are provided, there is a case for insisting that cyclists use them rather than continue riding in the road, since this causes unnecessary delay to other traffic, including buses. It also does little to endear cyclists to other road users.

Education versus enforcement

The ABD has always strongly supported road user education over enforcement, while recognising that there is a minority of people for whom the deterrent of enforcement is required. Indeed, the ABD was instrumental in getting J J Leeming's seminal 1969 book on road safety, *Road Accidents: prevent or punish?* republished in 2007[13].

In this respect the ABD is at odds with the majority of the road safety 'establishment', which generally seems to dismiss driver training as ineffective. This attitude defies common sense. If driver training were worthless, why bother with a driving test at all? A double decked bus may hold sixty or more unrestrained passengers, whose safety relies entirely on the skill of the highly trained driver. Many insurance companies give discounted premiums to drivers who have completed further training with organisations such as the Institute of Advanced Motorists or RoSPA. Would those businesses do so unless they had evidence that such drivers pose a lower risk?

The ABD accepts, however, that those who have little interest in driving as an activity in its own right, rather than just a means of getting from A to B, are unlikely to take the trouble to learn to do it to the best of their ability. As roads become more congested and restrictions on drivers increase, there will be even less incentive for people to learn to drive well.

This vicious circle needs to be reversed. To do so will require an end to the demonization of motor vehicles and a recognition that the economy, and society in general, would collapse without the road network. There also needs to be much greater promotion of the benefits of road safety training for pedestrians, cyclists and drivers, starting at an early age in schools.

To summarise, the ABD wants to see greater understanding and cooperation between road users. To achieve this it will be necessary to:

- Review transport policies, especially in towns and cities, that have reallocated road space disproportionately to non-motorised road users for ideological reasons.
- Recognise the contribution drivers make to the economy and stop the propaganda war against them.
- Encourage existing drivers to take advanced training as a responsible thing to do, not just to benefit from lower insurance premiums.
- Make road safety education, including that of future drivers, compulsory in all schools, with off-road driving experience encouraged where possible.

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